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Please find below and/or attached an Office communication concerning this application or proceeding.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/729,412
Filing Date: December 05, 2003
Appellant(s): KUSY ET AL.

Laura M. Kelley
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 17 April 2008 appealing from the Office action mailed 17 October 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is substantially correct. The Examiner notes that the status of Claims 1-7 was not indicated. Claims 1-7 are cancelled.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

WITHDRAWN REJECTIONS

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. However, all claims were not rejected under 35 U.S.C. § 103(a) over Fernyhough et al. (US Patent No. 5,700,417) in view of Schäper (US Patent No. 4,464,121). As indicated below, the rejection solely over Fernyhough et al. (US Patent No. 5,700,417) is replaced by rejecting all pending claims (Claims 8-20, 42, and 43)

under 35 U.S.C. § 103(a) over Fernyhough et al. (US Patent No. 5,700,417) in view of Schäper (US Patent No. 4,464,121).

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner:

- Whether Claims 8, 9, 14-18, 20, 42, and 43 are unpatentable under 35 U.S.C. § 103(a) over Fernyhough et al. (US Patent No. 5,700,417).

NEW GROUND(S) OF REJECTION

Claims 8-20, 42, and 43 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Fernyhough et al. (US Patent No. 5,700,417) in view of Schäper (US Patent No. 4,464,121).

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,700,417	Fernyhough et al.	12-1997
4,434,121	Schäper	02-1984

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 8-20, 42, and 43 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Fernyhough et al. (Ferryhough, US Patent No. 5,700,417) in view of Schäper (US Patent No. 4,464,121).

With respect to Claims 8 and 42, Fernyhough teaches pultruding glass fiber roving through a resin bath, curing it (continuously pultruding a fiber-reinforced plastic

article to form a fiber-reinforced plastic article having a first partial cured state) (see col. 1, lines 39-44; col. 4, lines 63-65), and winding it on a winder (continuously shaping the first fiber-reinforced plastic particle having the first partially cured state into a spirally wound shape) (see col. 1, lines 39-44; drawing). The winding would occur in a spiral since it would occur at an initial point and lap spirally out. Fernyhough teaches incremental curing of the product during the radiation exposure (see col. 1, lines 48-65 and col. 5, lines 13-18).

Fernyhough discloses the claimed invention of two stage curing (see col. 5, lines 13-18), forming a pultruded product that is spiral shaped by winding on a mandrel (see col. 4, lines 46-53), and post-winding curing (see col. 4, lines 53-59).

However, Fernyhough does not expressly teach a second cure step after winding to fully cure.

Schäper teaches drawing a fiber-reinforced plastic between the spiral grooves of a stator and rotor to form the cross-sectional profile of the strand, and within the spiral die, the fiber-reinforced plastic is hardened in a spiral configuration (curing the fiber-reinforced plastic article having the first partially cured state to form a spirally wound fiber-reinforced plastic article having a second cured state that is more rigid than the fiber-reinforced plastic article having the first partially cured state) (see abstract and col. 3, lines 53-59).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Schäper's shaping spiral grooves with

Fernyhough's process in order to form a pultruded product that is spring-shaped with small tolerances of the shape (see Schäper, abstract).

With respect to Claim 9, Fernyhough teaches reshaping the rod from straight to curved by winding it on a winder (wherein the shaping step comprises a step of molding the fiber-reinforced plastic article on a rotatable mold) (see col. 1, lines 39-44; drawing). With respect to Claims 10 and 12, Fernyhough teaches a method of making a spirally wound fiber-reinforced plastic article having a second cured state as previously described. However, Fernyhough does not expressly teach drawing the fiber-reinforced plastic article having the first partially cured state through a die having a cross-section to form a fiber reinforced plastic article having the first partially cured state and having substantially said cross-section.

Schäper teaches drawing a fiber-reinforced plastic between the spiral grooves of a stator and rotor to form the cross-sectional profile of the strand (drawing the fiber-reinforced plastic article having the first partially cured state through a die having a cross-section to form a fiber reinforced plastic article having the first partially cured state and having substantially said cross-section) (see abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Schäper's shaping spiral grooves with Fernyhough's process in order to form a spring with small tolerances of the shape (see Schäper, abstract).

With respect to Claims 11 and 13, Schäper's rotatable mold's spiral grove is part of the die (see abstract). Within the die, the fiber-reinforced plastic is hardened (cured)

(see col. 3, lines 53-59). Since the fiber-reinforced plastic is curved (molded) and cured while it is drawing though the die, the steps occur contemporaneously.

With respect to Claim 14, Fernyhough teaches sending the coated roving under a UV lamps at a set speed (see col. 7, lines 54 and 55), which would necessarily apply energy at a substantially constant rate per length.

Alternatively, Schäper teaches putting energy into the fiber-reinforced plastic article (see col. 3, lines 53-59) but does not appear to explicitly teach that the ratio of the energy input per unit length of the fiber-reinforced plastic article is within the claimed range (e.g., substantially constant).

However, in this regard, Schäper teaches adapting the speed of running the strand through, the resin employed, and the process temperature to each other (see col. 3, lines 53-59). As such, Schäper recognizes that that the ratio of the energy input per unit length of the fiber-reinforced plastic article is a result-effective variable. Since that the ratio of the energy input per unit length of the fiber-reinforced plastic article is a result-effective variable, one of ordinary skill in the art would have obviously been motivated to determine the optimum that the ratio of the energy input per unit length of the fiber-reinforced plastic article applied in the process of Schäper through routine experimentation based upon adapting the process variables cited above—the speed of running the strand through, the resin employed, and the process temperature.

With respect to Claims 15 and 43, Fernyhough teaches that suitable energy sources for curing include electromagnetic radiation, which would input energy (see col. 1, lines 48-65).

With respect to Claim 16, Fernyhough considers UV and visible radiation to be unlike microwave and IR radiation because microwave and IR radiation have to be converted to thermal energy (see col. 1, lines 47-65). Thus, Fernyhough considers UV and visible radiation to be thermal energy. Alternatively, Schäper teaches curing with thermal energy (see col. 3, lines 53-59).

With respect to Claim 17, Fernyhough teaches that the pultruding pulls coated glass fiber through a die to determine its shape and cures it (the pultruding step comprises the steps of shaping an uncured fiber-reinforced plastic; and curing the uncured fiber-reinforced plastic article to form the fiber-reinforced plastic article having a first partially cured state) (see col. 1, lines 39-44; col. 4, lines 63-65).

With respect to Claims 18 and 19, as combined references, Fernyhough teaches UV radiation of the uncured fiber-reinforced plastic article (see col. 1, lines 39-44), and Schäper teaches applying thermal energy to the fiber-reinforced plastic article having the first partially cured state (see col. 3, lines 53-59). The UV and thermal energies are two types of applied energy (wherein the step of curing the uncured fiber-reinforced plastic article comprises imputing a first type of energy into the uncured fiber-reinforced plastic article, and wherein the step of curing the fiber-reinforced plastic article having the first partially cured state comprises imputing a second type of energy into the fiber-reinforced plastic article having the first partially cured state).

With respect to Claim 20, Fernyhough teaches using visible of UV radiation in the multiple lamps (see figure; col. 1, lines 47-65). As visible and UV radiation spectrums overlap, the teaching of visible radiation necessarily includes application of some UV

radiation. Similarly, the teaching of UV radiation necessarily includes application of some visible radiation.

(10) Response to Argument

In appellant's arguments section II, Appellant argues that there is no reason to modify Fernyhough's production of a straight rod into Appellant's claimed spirally wound shape.

In response, the Examiner relies upon Fernyhough's teaching to form spirally-shaped products (see col. 4, lines 46-53) and suggests modifying the curing to cure on a mandrel (see col. 4, lines 53-59). Thus, it is complementary to Fernyhough's teaching of making a spirally wound product to modify Fernyhough's second curing step to be Schäper's method of curing in a spiral configuration (see abstract and col. 3, lines 53-59).

In appellant's arguments section II, Appellant further argues that the applied references are not able to provide an elliptically shaped plastic article. In response, it is noted that the features upon which applicant relies are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In appellant's arguments section II, Appellant further argues the rejection of Claims 8, 9, 14-18, 20, 42, and 43 under 35 U.S.C. § 103(a) solely over Fernyhough et al. (US Patent No. 5,700,417) with consideration of reversal of parts.

In response, the Examiner has withdrawn the rejection of Claims 8, 9, 14-18, 20, 42, and 43 under 35 U.S.C. § 103(a) solely over Fernyhough et al. (US Patent No. 5,700,417) by modifying the rejection to include Schäper (US Patent No. 4,464,121) as described above.

In appellant's arguments section **III**, Appellant argues that neither Fernyhough et al. nor Schäper teach inputting energy into the article.

In response, the Examiner relied upon Fernyhough's teaching of curing of the product during the radiation exposure (see col. 1, lines 48-65 and col. 5, lines 13-18) as well as Schäper's teaching of putting energy into the fiber-reinforced plastic article to cure it (see col. 3, lines 53-59).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

This examiner's answer contains a new ground of rejection set forth in section **(9)** above. Accordingly, appellant must within **TWO MONTHS** from the date of this answer exercise one of the following two options to avoid *sua sponte* **dismissal of the appeal** as to the claims subject to the new ground of rejection:

(1) **Reopen prosecution.** Request that prosecution be reopened before the primary examiner by filing a reply under 37 CFR 1.111 with or without amendment, affidavit or other evidence. Any amendment, affidavit or other evidence must be relevant to the new grounds of rejection. A request that complies with 37 CFR

41.39(b)(1) will be entered and considered. Any request that prosecution be reopened will be treated as a request to withdraw the appeal.

(2) **Maintain appeal.** Request that the appeal be maintained by filing a reply brief as set forth in 37 CFR 41.41. Such a reply brief must address each new ground of rejection as set forth in 37 CFR 41.37(c)(1)(vii) and should be in compliance with the other requirements of 37 CFR 41.37(c). If a reply brief filed pursuant to 37 CFR 41.39(b)(2) is accompanied by any amendment, affidavit or other evidence, it shall be treated as a request that prosecution be reopened before the primary examiner under 37 CFR 41.39(b)(1).

Extensions of time under 37 CFR 1.136(a) are not applicable to the TWO MONTH time period set forth above. See 37 CFR 1.136(b) for extensions of time to reply for patent applications and 37 CFR 1.550(c) for extensions of time to reply for ex parte reexamination proceedings.

Respectfully submitted,

/Patrick Butler/

Patrick Butler

Examiner, Art Unit 1791

A Technology Center Director or designee must personally approve the new ground(s) of rejection set forth in section (9) above by signing below:

/Kathryn Gorgos/

Kathryn Gorgos

Director Designee

Conferees:

/Yogendra N Gupta/

Yogendra N. Gupta

Supervisory Patent Examiner, Art Unit 1791

/Kathryn Gorgos/

Kathryn Gorgos

Appeals Specialist, TC 1700